

## LM-79 Photometric Test Report

**Fixture Model Number:** LW5

**Report Prepared For:** ikan international  
11500 S. SAM HOUSTON PKWY, HOUSTON, TX

**Test:** Electrical and Photometric tests as required by the IESNA test standards

**Description of Sample (Test results are applicable only to the following configuration): IKAN LYRA DAYLIGHT HALF FOOT X ONE FOOT LED LIGHT FIXTURE.**

**The sample(s) was (were) tested in accordance with the following applied standards/regulations:**

- IESNA LM79: 2008 Approved for Electrical and Photometric Measurements of Solid-State Lighting Products
- ANSI NEMA ANSLG C78.377: 2008 Specification of the Chromaticity of Solid State Lighting Products
- ATAL Goniophotometer Test Procedure
- ATAL Sphere Test Procedure

**Test Report shall not be reproduced except in full, without written approval of ATAL**

**ATAL Test Number:** ATAL019077

**Sample Arrival Date:** 6/15/2017

**Date of Tests:** 6/20/2017

**Test Report Prepared by:**

*Adrienne Lattimore*

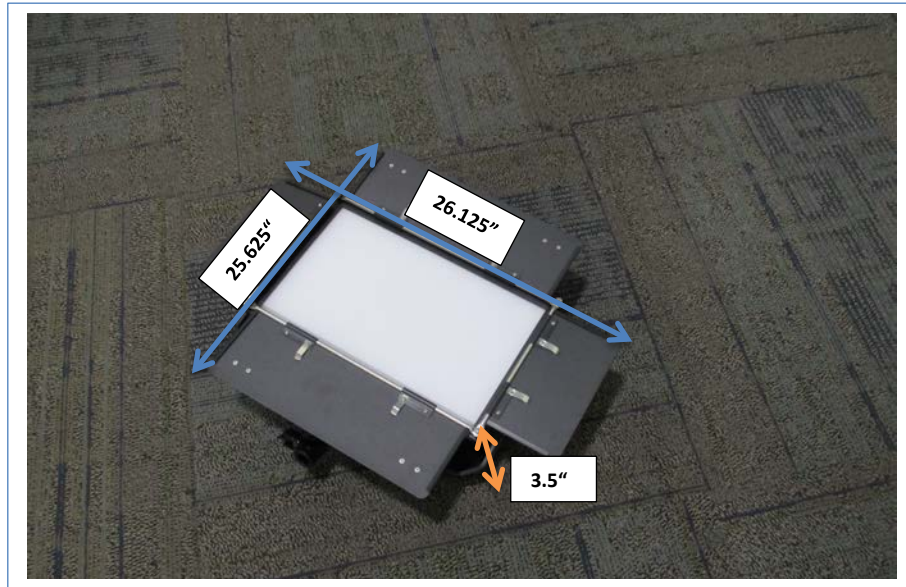
**Adrienne Lattimore, Technician**

**Test Report Approved By:**

*Jim Rice*

**Jim Rice, Lab Manager**

**ATAL Test Number: ATAL019077**



**Sphere Equipment Used**

Description	Model #	Serial #	Calibration Date	Calibration due date
Integrating 76 inch Sphere	LMS760	1230110011	4/26/2017	10/26/2017
Voltech Power Analyzer	PM1000+	100008202596	9/14/2016	9/14/2017
Onset Thermometer	U14-002	10408869	9/21/2016	9/21/2017
Agilent DC Power Supply	E3634A	MY53240055	9/14/2016	9/14/2017

**Goniophotometer Equipment Used**

Description	Model #	Serial #	Calibration Date	Calibration due date
ITL Type C Gonio System	ITL GCC1	C114-0512	1/6/2017	7/6/2017
Yokogawa Digital Power Meter	WT210	91MB22428	9/13/2016	9/13/2017
Agilent DC Power Supply	N5770A	US13A0157J	9/14/2016	9/14/2017
Onset Data Logger	U14-002	10408835	9/20/2016	9/20/2017

**ATAL Test Number: ATAL019077**

**LM-79 Test Summary**

<b>Manufacturer:</b>	ikan international	
<b>Model Number:</b>	LW5	
<b>Driver Model Number:</b>	DC POWER SUPPLY	
<b>Lamp :</b>	5600K 0.06 WATT LEDS	
<b>Pre-Burn Time (hours):</b>	24	

**Electrical Measurement**

<b>Input Voltage:</b>	15.02 VDC	Continuous Voltage Monitoring <input checked="" type="checkbox"/>
<b>Input Current:</b>	2.108 A	
<b>Input Power:</b>	31.67 W	

**Light Output:**

<b>Lumens:</b>	2691 Lm	
<b>Efficacy:</b>	84.9 Lm/W	
<b>Color Rendering Index (CRI):</b>	R <sub>a</sub> : 96.78	R <sub>g</sub> : 89.81
<b>Correlated Color Temperature (K):</b>	5928	
<b>Chromaticity Coordinate x:</b>	0.3237	
<b>Chromaticity Coordinate y:</b>	0.3281	
<b>Ambient Temperature (°C):</b>	25.5	
<b>Stabilization Time (Mins):</b>	30	
<b>Total Operating Time (Hours):</b>	24	
<b>u/u':</b>	1	
<b>v:</b>	0.3130	
<b>v':</b>	0.4695	
<b>Duv:</b>	-0.0027	

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**Test Methods**

**Photometric Measurements – Goniophotometer**

An ITL Type C Rotating Mirror Goniophotometer was used to measure candelas (intensity) at each angle of distribution as defined by IESNA for the appropriate fixture type.

Ambient temperature is set to  $25^{\circ}\text{C} \pm 1^{\circ}$  and is measured from the center of the fixture, within 1 meter from the outside of the fixture. Temperature is maintained at  $25^{\circ}\text{C} \pm 1^{\circ}$  throughout the testing process and the sample is stabilized for at least 30 minutes and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

**Spectral Measurements – Integrating Sphere**

A sensing Spectrometer CDS-2100, in conjunction with Labsphere 2 meter integrating sphere was used to measure chromaticity coordinates, correlated color temperature (CCT) and the color rendering index (CRI) for each sample.

Ambient temperature is set to  $25^{\circ}\text{C} \pm 1^{\circ}$  and is measured from the center of the fixture, within 1 meter from the outside of the fixture. Temperature is maintained at  $25^{\circ}\text{C} \pm 1^{\circ}$  throughout the testing process and the sample is stabilized for at least 30 minutes and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

**This report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.**

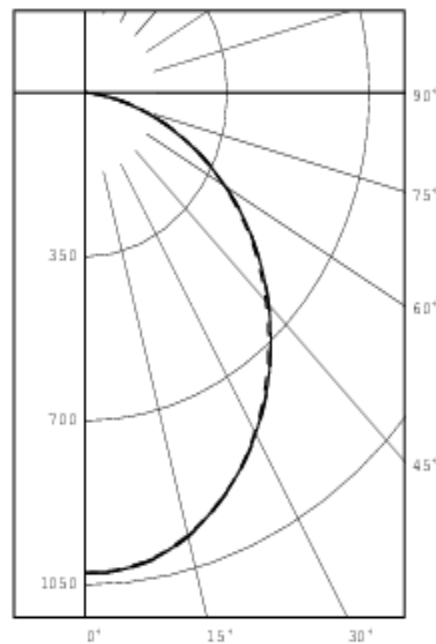
REPORT NUMBER: ATAL019077  
 ISSUE DATE: 06/20/17  
 PREPARED FOR: ikan international  
 CATALOG NUMBER: LW5  
 LUMINAIRE: IKAN LYRA DAYLIGHT .5X1 LED LIGHT FIXTURE.  
 LAMP CAT. NO.: 5600K 1 WATT LEDS  
 LAMP: 5600K LED MODULE  
 BALLAST CAT. NO.: DC POWER SUPPLY 114  
 BALLAST: (1) AGILENT DC POWER SUPPLY  
 INPUT WATTS: 31.67, AMPS: 2.108, VDC:  
 15.02, TEMP: 25.5 C, HRS OPERATED  
 PRIOR TO TESTING: 24; STABILITY: 30  
 MIN  
 MOUNTING: POLE MOUNTED  
 TEST ABSOLUTE PHOTOMETRY IS BASED ON  
 CALIBRATION FACTORS CREATED USING A  
 1000 WATT, NIST TRACEABLE,  
 OMNIDIRECTIONAL LAB LUMEN STANDARD  
 IN THE GONIOPHOTOMETER WITH A TEST  
 DISTANCE OF 28 FEET  
 DATA SHOWN IS ABSOLUTE FOR THE SAMPLE  
 PROVIDED.

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CANDELA DISTRIBUTION						FLUX
0.0	22.5	45.0	67.5	90.0		
0	1025	1025	1025	1025	1025	
5	1020	1021	1022	1023	1023	97
15	977	978	979	980	981	276
25	893	893	894	895	896	412
35	772	774	779	781	781	486
45	629	632	639	642	641	491
55	475	478	483	485	483	430
65	313	315	312	315	317	311
75	152	149	146	149	150	159
85	21	21	19	18	17	29
90	0	1	2	2	1	

ZONAL LUMEN SUMMARY		
ZONE	LUMENS	%FIXT
0- 30	785	29.2
0- 40	1271	47.2
0- 60	2192	81.5
0- 90	2691	100.0
90-180	0	0.0
0-180	2691	100.0

TOTAL INPUT WATTS = 31.7  
 EFFICACY = 84.9 Lm/W  
 CIE TYPE - DIRECT  
 PLANE : 0-DEG 90-DEG  
 SPACING CRITERIA : 1.2 1.2



LEGEND:  
 0-deg: - - - - -  
 45-deg: \_\_\_\_\_  
 90-deg: - - - - -

Checked	.....
Approved	.....

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PLANE : 0-DEG 90-DEG  
BEAM ANGLE (50%) : 105.4 X 106.3 DEGREES  
FIELD ANGLE (10%) : 156.6 X 156.3 DEGREES

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CANDELA DISTRIBUTION

	0.0	22.5	45.0	67.5	90.0
0.0	1025	1025	1025	1025	1025
2.5	1023	1024	1025	1026	1026
5.0	1020	1021	1022	1023	1023
7.5	1014	1014	1015	1017	1017
10.0	1005	1005	1007	1008	1009
12.5	992	993	994	995	996
15.0	977	978	979	980	981
17.5	959	960	961	962	963
20.0	939	939	940	941	942
22.5	917	917	918	919	920
25.0	893	893	894	895	896
27.5	866	867	868	870	870
30.0	836	838	840	842	842
32.5	805	807	810	812	812
35.0	772	774	779	781	781
37.5	738	740	746	748	748
40.0	702	705	711	714	712
42.5	667	669	676	679	677
45.0	629	632	639	642	641
47.5	592	595	601	605	603
50.0	554	557	563	567	563
52.5	516	518	524	526	524
55.0	475	478	483	485	483
57.5	435	438	441	444	444
60.0	394	397	398	402	400
62.5	354	356	355	358	359
65.0	313	315	312	315	317
67.5	273	274	269	273	274
70.0	230	232	227	231	232
72.5	192	190	186	190	191
75.0	152	149	146	149	150
77.5	114	112	108	110	112
80.0	79	76	73	75	76
82.5	48	47	43	44	44
85.0	21	21	19	18	17
87.5	2	4	5	3	2
90.0	0	1	2	2	1

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5-DEGREE  
 ZONAL LUMEN SUMMARY

0- 5	24
5- 10	73
10- 15	118
15- 20	158
20- 25	192
25- 30	219
30- 35	238
35- 40	248
40- 45	249
45- 50	242
50- 55	227
55- 60	203
60- 65	173
65- 70	138
70- 75	99
75- 80	60
80- 85	25
85- 90	4
90- 95	0
95-100	0
100-105	0
105-110	0
110-115	0
115-120	0
120-125	0
125-130	0
130-135	0
135-140	0
140-145	0
145-150	0
150-155	0
155-160	0
160-165	0
165-170	0
170-175	0
175-180	0

10-DEGREE  
 ZONAL LUMEN SUMMARY

0- 10	97
0- 20	373
0- 30	785
0- 40	1271
0- 50	1762
0- 60	2192
0- 70	2503
0- 80	2662
0- 90	2691
0-100	2691
0-110	2691
0-120	2691
0-130	2691
0-140	2691
0-150	2691
0-160	2691
0-170	2691
0-180	2691



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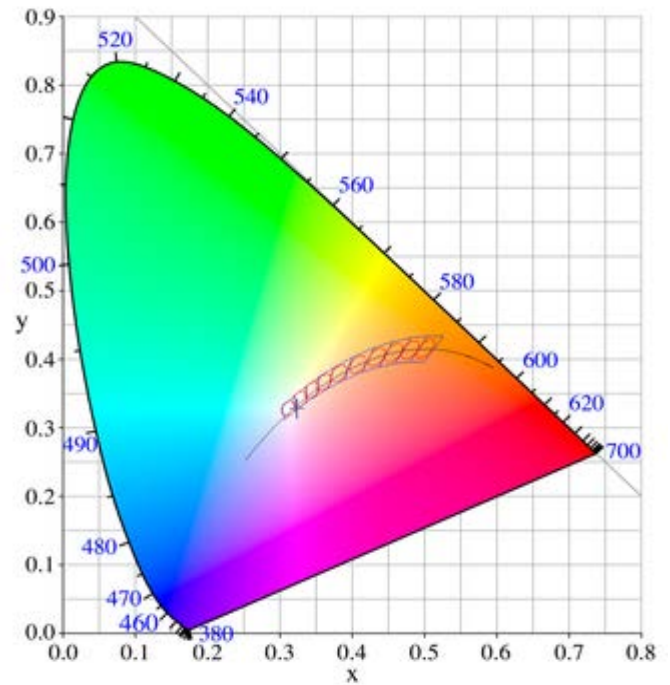
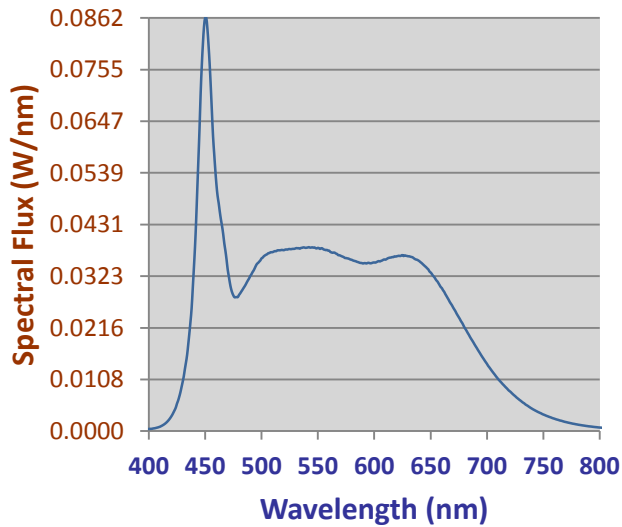
COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

RC	80			70			50			30			10			0		
	RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	0		
0	119	119	119	119	119	116	116	116	116	111	111	111	111	111	111	100		
1	109	105	101	97	107	103	99	95	98	95	92	94	92	90	91	89	87	85
2	100	92	85	80	97	90	84	79	86	81	77	83	79	75	80	77	73	71
3	91	81	73	67	89	79	72	66	76	70	65	74	68	64	71	66	63	60
4	83	72	63	57	81	70	62	56	68	61	55	66	60	55	63	58	54	52
5	77	64	55	49	75	63	55	49	61	54	48	59	53	48	57	52	47	45
6	71	58	49	43	69	57	49	43	55	48	42	53	47	42	52	46	41	39
7	66	53	44	38	64	52	44	38	50	43	37	49	42	37	47	41	37	35
8	61	48	40	34	60	47	39	34	46	39	33	45	38	33	44	38	33	31
9	57	44	36	30	56	43	36	30	42	35	30	41	35	30	40	34	30	28
10	54	41	33	28	53	40	33	28	39	32	27	38	32	27	37	31	27	25

ALL CANDELA, LUMENS, LUMINANCE, AND VCP VALUES IN THIS REPORT ARE  
 BASED ON ABSOLUTE PHOTOMETRY. THE COEFFICIENT OF UTILIZATION VALUES  
 ARE BASED ON THE TOTAL ABSOLUTE LUMEN OUTPUT OF THIS LUMINAIRE SAMPLE.

### Relative Spectral Power Distribution



CCT		CRI		x		y		Duv		u'		v'	
5928.0		96.784		0.3237		0.3281		-0.0027		0.2059		0.4695	
R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14
95.8	97.8	95.9	97.5	96.7	94.2	99.4	96.9	89.8	97.1	94.7	77.6	96.5	97.4